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EDUCATING MEMBERS ABOUT SEASONALITY OF MILK DELIVERIES

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METHODS USED BY WICHITA MILK PRODUCERS ASSOCIATION

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The Farmer Cooperative Service conducts research studies and service activities relating to problems of management, organization, financing, processing, merchandising, sales, costs, and membership arising in connection with the cooperative marketing of agricultural products and the cooperative purchase of farm supplies and services. It publishes the results of research studies, presents recommendations to management in the course of service activities, and cooperates with all agencies and individuals interested in disseminating information relating to cooperative principles and practices.

EDUCATING MEMBERS ABOUT SEASONALITY OF MILK DELIVERIES --

Methods Used by Wichita Milk Producers Association

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This report has been prepared in connection with a general study being conducted to assist managements of milk marketing cooperatives and others in developing effective programs to encourage producers to provide seasonally more uniform milk supplies. The study has been conducted with funds provided under the Agricultural Marketing Act of 1946, as amended. It is believed that issuance in this preliminary form will be immediately helpful to producers, their cooperatives, and other organizations with similar problems, as well as to the Wichita Milk Producers Association. It will also facilitate analysis of all the data collected and preparation of a later report from this study.

Seasonal variations in deliveries of Grade A milk lead to serious marketing problems. About the same quantity of milk is needed for use in fluid products in one season as another. But farmers in most milksheds deliver much more milk in the late spring (May to June) than the early fall (October to November). Since regular and supplemental sources of supply must be adequate in the shortage season, a surplus of milk remains in most months, reaching a peak in the spring flush period. The surplus ordinarily is diverted to manufacturing uses.

Manufacturing facilities must be maintained for the seasonal surplus, and milk sometimes must be obtained from supplemental sources in the shortage season. A bargaining problem results if processors try to hold the seasonal surplus "over the heads" of producer representatives in seeking lower prices. At the very least, producers could increase their returns as a group by increasing their fall production enough to fill fluid requirements, if the increase in the fall were accomplished by adopting management practices which also would reduce spring production. This would increase the proportion of milk going into Class I uses.

Individual producers, as well as the group, have an incentive for more level production in most markets. The blend price of milk is higher in the fall than in the spring. In the Wichita market, this is because (a) the basic prices used in computing Class I and Class II prices usually are higher in the fall, (b) a slightly larger proportion of milk received in the fall than in the spring is used in Class I products and (c) different formulas were used (until 1955) to compute Class II price in the flush season than in the rest of the year. The base excess plan used at Wichita provides a further sizeable incentive for producers to seek an even pattern of deliveries.

Besides price incentives, dairymen probably should be encouraged by educational means to level out seasonally the volume of milk delivered from their farms. Producers may be told the marketing problems caused by seasonality. They may be told what it is costing them as a group to produce more milk in the spring than in the fall. The most effective line of education probably is to tell the farmers about their individual incentives to deliver a more even flow of milk. Finally, they may be informed of the changes in herd management practices which would help them progress toward even production. This is in broad outline the content of an educational program about seasonality.

The Farmer Cooperative Service began in 1954 to study the educational programs of selected cooperatives that had to do with seasonal variations of deliveries. We interviewed officials of 12 cooperatives chosen from those in the North Central, Middle Atlantic, and New England States. We obtained certain supplementary data.

We also interviewed samples of 100 members of two cooperatives. The Wichita Milk Producers Association (WMPA) was one of these; the other operates with a "fall-premium" type of seasonal pricing plan. The purpose of these interviews was to obtain an indication of how much of the educational material had "gotten through" to the dairymen, and the need for more educational effort. For each dairyman interviewed, we also obtained records on his deliveries of milk to Wichita handlers by months.

We held our interviews and collected data at Wichita at the time Mark Abildgaard was Secretary-Manager and Lynn Elrod was Assistant Manager of WMPA.
Mr. Abildgaard retired and Mr. Elrod became Secretary-Manager in April 1955.

Seasonal Problem at Wichita

The Wichita market has achieved an unusually uniform seasonal pattern of milk receipts (Table 1). In 1940 and 1941 the seasonal index of daily deliveries per producer did not rise above 112 or fall below 90 in any month. Conditions during World War II resulted in setting back the progress toward an even flow of Grade A milk throughout the United States. Wichita shared in this experience. The seasonal index fell to 82 in October of 1944 and 1945 and at the other seasonal extreme rose to 119 in May 1947. By this time, the market had expanded greatly in its milk requirements. Many farmers began delivering Grade A milk for the first time. They had not experienced either the price incentives of the Wichita market for even production, or the persuasion (educational program) which permeated the market. Established producers also probably failed to produce as even a flow of milk as formerly. Price incentives for level production almost disappeared, and farmers were encouraged to deliver more milk, regardless of season.

The base excess plan was stopped during the war and was not actually effective again until 1948. The seasonality picture improved rapidly, and the seasonal index has not exceeded 110 since 1950. The index did not fall below 93 from 1950 until the drought month of July 1954.

Table 1. -- Seasonal index of average daily deliveries per producer to Wichita, Kans., market, 1940-1954

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						(seasonal index in percent) 1/						
1940	93	96	99	103	111	111	106	100	93	95	95	94
1941	97	98	101	108	112	105	106	101	92	90	91	94
1942	95	100	103	110	115	102	106	103	92	88	93	89
1943	93	100	103	113	117	113	106	95	91	86	89	90
1944	97	107	112	115	114	104	104	100	87	82	93	87
1945	94	99	106	113	114	114	109	99	101	82	87	87
1946	91	97	104	118	116	108	104	95	94	88	88	94
1947	96	107	111	115	119	107	100	96	88	86	89	92
1948	98	101	102	111	115	107	102	99	90	89	90	98
1949	99	101	106	111	112	100	100	98	89	90	98	96
1950	95	100	106	108	110	105	103	98	93	95	100	96
1951	97	100	101	102	108	106	98	99	96	95	95	96
1952	98	101	101	105	110	99	95	96	96	95	98	99
1953	101	105	106	106	107	94	94	97	98	98	102	101
1954	100	103	107	108	107	93	85	92				

1/ Average daily deliveries per producer in current month divided by 12-month moving average of average daily deliveries per producer.

Source: Records of Dairy Division, Agricultural Marketing Service, U.S.D.A., and Fluid Milk and Cream Report, Agricultural Marketing Service.

The seasonal pattern of milk deliveries at Wichita is now much more uniform than the pattern of most large markets. The picture also is distinctive in that the seasonal flush and slack periods are earlier than in most markets with comparable weather conditions. We note, however, that the Wichita area has experienced 3 successive years with hot, dry summers. The data obtained in this study do not indicate what will be the seasonal pattern in years with more nearly "average" weather.

Efforts to Solve Problem of Uneven Deliveries

We have indicated two types of actions to obtain more even deliveries from producers. We will discuss first the price or income incentives which have been provided to cause farmers to try to even out their production patterns. Then most of this report will be a discussion and evaluation of educational work conducted to encourage more even production.

Price Incentives for Level Production

It is difficult to describe the incentive for level production where a base excess pricing plan is used. This incentive is not the difference between the base and excess prices for any one month. A dairyman delivers milk throughout the year, and not in just 1 month. Further, the difference between base and excess prices leaves out of consideration the seasonal changes in each of these prices themselves.

The difference between base and excess prices for individual months may be one of the best ways to describe seasonal incentives to producers, even though this difference tells only part of the story of the entire seasonal incentives. This difference is fairly simple to explain, easy to obtain, seems dramatic, and has a genuine relationship to the entire incentive. We do not suggest that officials of cooperatives and others should not talk and write about the difference between base and excess prices in encouraging producers to deliver a more even volume of milk.

A more precise procedure, however, requires calculation of income incentives for a specific change in pattern of deliveries. These calculations will be useful in this study. Note in this discussion of incentives that it may not pay a farmer to change his seasonal pattern although the average price would be higher. The cost of changing management practices is an entirely different subject of discussion.

From the data obtained at Wichita the author developed three composite "producers" representing different seasonal patterns of production. The next paragraphs tell how we developed these composite seasonal patterns.

Producer F (for fall) represents the group of producers who usually deliver more milk in the fall than the spring. Producer E (for equal) represents producers who usually deliver the same amount of milk in the fall as in the flush season. Producer S (for spring) represents producers who usually deliver much more milk in the spring than in the fall. (Table 2).

Table 2. -- Seasonal indexes of deliveries for fall peak, equal, and spring peak "producers" representing Wichita market and average milk price for each, 1952-54 1/

Month	F (fall peak)	E (equal)	S (spring peak)
	Monthly index in percent		
January	105	91	104
February	108	95	115
March	103	104	116
April	98	108	116
May	96	105	116
June	75	91	102
July	67	86	95
August	78	98	94
September	104	106	82
October	115	106	78
November	127	107	86
December	124	102	98
Average price received for milk delivered 2/ 3/	$5.19	$5.22	$5.00
Additional income for F and E producers 3/ 4/	$233.92	$274.16	$0.00

1/ See text for discussion of composite types of producers.

2/ Average price computed with 1952-54 prices at Wichita. Bases computed from average deliveries during August to November of 1952-54 for same producers. Average price for "fall peak" producer lower than for "equal" because data used resulted in a substantial volume of excess milk for F in October and November.

Annual average price for any of the three producers would be the same for any total volume of production, as long as seasonal distribution was that indicated for this producer.

3/ Computed from unrounded data.

4/ Computed at median volume of deliveries per producer at Wichita during 1954. (Median = half of producers higher, half lower). Median taken from 100 complete records = 125,762 pounds. "Additional income" is simply this typical volume multiplied by price difference for producers F and E, respectively, from price for S (For E: $5.218 - $5.000 = 0.218. $0.218 times 1,257.62 (hundredweight) = $274.16).

The first striking characteristic of seasonal patterns of deliveries by a large number of individual producers is their variation. A dairyman does not maintain the same pattern year after year.

We could develop seasonal patterns typical of groups of producers in two ways. We could average the deliveries for individual years which happened to conform to the patterns we wish to discuss. These delivery patterns for individual years would be taken from the records of many producers.

The other alternative would be to group the producers by the average of their seasonal patterns for several years (here 1952-54). This last alternative seems more realistic since dairymen do not maintain the same pattern consistently. Each of the composite producers in table 2 represents records of 10 producers for 3 years -- 1952-54. Producer *S* represents the 10 farmers in our sample with the *largest* spring peak of deliveries. *F* represents 10 farmers with a moderate fall peak, but not the most extreme. It seemed unlikely that many farmers would *plan* to have the seasonal patterns experienced by a few in the sample who had an extreme fall peak.

Note that even producer *E* does not have a uniform flow of milk in all months. Producers with the same volume of milk in the fall and the spring probably have a large proportion of their cows freshen in the early fall. They therefore have a slump in production in about June and July, when many of their cows are dry. This summer slump is made larger than usual in the data used, because of the hot, dry summers at Wichita in 1952-54.

How does the average price received by producers *F* and *E* compare with *S*'s price? We computed this by using 1952-54 data for Wichita throughout. Bases were computed using August to November deliveries for each composite producer, *F*, *E*, and *S*. The average prices were $5.19 and $5.22 per hundredweight for *F* and *E*, respectively. Producer *S* received an even $5. The fall peak producer (*F*) received a slightly lower price than *E* because he had a substantial volume of excess milk in October and November.

The Wichita base excess rules thus penalize, in a way, the producers who deliver more milk in any fall month than their average deliveries in the preceding fall. This places a slight "penalty" on increases of production and on failure to deliver the same amount of milk in each base-forming month, August to November. The penalty is not substantial.

We can easily compute the average price for a hypothetical producer who delivers the same quantity of milk every month (as a daily average). Also assume this average daily quantity is the same as for the base period. This possible seasonal pattern would mean he would have no excess milk; all would sell at the base price. Such a producer would receive $5.23 for his milk. This seems to be about a maximum price under recent price conditions at Wichita. A producer could theoretically obtain even a higher price by arranging to have no excess milk during the highest price months, and less milk during the other months. These assumptions, however, are highly unrealistic except for the producer who is gradually reducing his volume as well as meeting the other assumptions -- not at all a likely situation.

What do the different prices for producers F, E, and S mean in terms of extra returns a year for other than a spring peak of deliveries? We computed annual returns for producers F, E, and S, using the median (half the producers above, half below) volume of deliveries by the group of 100 Wichita producers during 1954. This median volume was 125,762 pounds (the average or mean for the same group was 147,966 pounds).

Producer F would have received $233.92 more than S. Producer E would have received $274.16 more than S. We will not comment here on whether this amount will repay a farmer for the changes he must make to obtain a more uniform seasonal pattern. Consider again the theoretical producer who delivers the same daily average of milk in all months (his average price was $5.23 per hundredweight, above). He would receive $289.25 more than S.

Educational Work Outside WMPA

The educational work in the Wichita area on the seasonal problem involves several organizations and several media. This report principally reviews the activity of the Wichita Milk Producers' Association. But the extension service, the milk dealers, farm magazines, newspapers, and other sources of information make important contributions to the dairyman's understanding of seasonality. Perhaps most of all, farmers gain much of their information and understanding through informal conversations with their neighbors. We recognize this major source of information and understanding, but we will be concerned with the more organized and formal educational programs.

Media used in education about seasonal production include publications, group meetings, radio programs, and informal personal discussions. The informal personal discussions are between dairymen and various officials and educational personnel in the milkshed. We first discuss work of agencies other than WMPA; and the methods they have used.

Education by Extension Service

Kansas State College plays an important part in keeping Kansas farmers informed on production and marketing problems. We did not obtain full information on the part the College plays in educating Wichita dairymen about seasonality.

The resident staff at the College conducts occasional research studies relating to seasonal production. On the production side, breeding, feeding, and other herd management problems are studied and reports prepared. On marketing, the agricultural economics staff makes occasional studies of the seasonal problem in marketing. Recent examples are the following publications: (1) The Pricing of Fluid Milk to Kansas Producers, Extension Service Circular 229, June 1951 (seasonal pricing is discussed briefly), and (2) Seasonal Variations in Prices, Sales, and Supplies of Milk and Feeds, Circular 309, June 1954.

The Department of Agricultural Economics also prepares three periodicals issued by the Kansas Extension Service: (1) The Kansas Agricultural Situation, (2) Marketing Information for Kansas Farmers, and (3) Kansas Market Comments. We did not review these but the College staff indicated that the publications frequently contain comments relating to seasonality.

Staff members of Kansas State College also occasionally talk at WMPA meetings. The extension specialists and county agents, however, come in more frequent direct contact with farmers than does the research staff. The specialists and county agents have a particularly good opportunity to talk about a marketing problem like seasonality at the extension dairy schools. George Gerber, the dairy marketing specialist, and production specialists take part in these meetings in most counties. Mr. Gerber said they frequently mention seasonality, and compare returns above cost of feed for cows freshening at different times of the year. They use large charts and also tables which are handed out to the audience.

Mr. Abilgaard indicated the extension service does not make a concerted effort around Wichita to influence seasonality of milk deliveries. He said they have, however, persuaded farmers when opportunities have arisen to plan for even production. In particular, they have encouraged farmers to breed cows for an even pattern of freshening.

Education by Magazines, Newspapers, and Radio

Farm magazines give farmers much assistance with production problems and occasionally carry articles dealing directly with marketing. We did not review material relating to seasonality in any farm magazines but call attention to this source.

Some newspapers in farm areas carry material on production and marketing problems similar to the magazines. The Weekly Kansas City Star is an example of these papers.

We are not familiar with farm radio programs in the Wichita area. These, however, certainly are among educational media on farm production and marketing problems.

Education by Milk Hauler, Dealer, and Feed Stores

Milk haulers come in frequent contact with farmers and often have an opportunity to discuss problems like seasonality with the farmers. We do not know the extent or nature of such discussions around Wichita. It is worth noting that a large dairy cooperative in another area feels that the milk haulers are very useful in keeping farmers informed about marketing. We will outline in another report how that association uses the haulers in their educational program.

Milk dealers have an active interest in seasonal variations of milk deliveries. Assuming the same pattern of class prices, they certainly prefer an even flow to an uneven flow of milk. Dealers in many markets therefore actively encourage producers to deliver milk in a more even flow. Mr. Abildgaard said the handlers' fieldmen at Wichita might occasionally talk about seasonality with producers. At least, he believed the handlers understood and appreciated that the base plan had helped to even out production.

Feed dealers occasionally contribute to education about seasonality through their efforts to get farmers to buy better feeds. This indirect assistance on marketing problems sometimes may be very helpful.

We have discussed briefly in this section the educational activity around Wichita relating to seasonality of milk deliveries. We do not have complete information on all organizations and media and in some cases have only called attention to the opportunities these organizations have to take part in the program through their meetings, publications, and personal contacts. Later sections of this report will be helpful in evaluating the various educational programs.

Educational Work by WMPA

Persons Involved and Media

Officials of WMPA take their information and comments about seasonality to their members through:

a. Meetings
    1. District meetings
    2. Annual general meeting
b. The Dairy Bulletin
c. Occasional letters and slips mailed with checks
d. Informal conversations of employees with individual members or small groups.

Mr. Abildgaard indicated that information about seasonal production has regularly been provided at district meetings. This subject has received less attention the last 2 or 3 years than formerly. The information has been presented in comments by Mr. Abildgaard, and there sometimes have been questions about bases and seasonality from the members. Mr. Elrod sometimes has taken part in the discussion. The entire comments and discussion were described as only a few minutes in length. Presumably even less time has been devoted within the last 2 or 3 years.

Average attendance at district meetings is 60 percent of membership. The district meetings are a major medium by which members are provided information about seasonal production. Slides, charts, and films are valuable visual aids in presenting information. Charts sometimes are used at district meetings of WMPA and probably could be used to better advantage than they have been.

The Dairy Bulletin is the second major educational medium used by WMPA. Every issue of the Bulletin contains price information a dairyman may consult in thinking about changing his seasonal pattern. The Bulletin also carries frequent articles commenting on seasonal variations of production.

We reviewed copies of the Bulletin for 1949-54 and counted 27 items commenting on seasonality. This subject was discussed frequently from 1949-1952, but less frequently in 1953 and 1954. These items usually were in a fairly prominent position in the first 3 or 4 pages of the Bulletin. The items reviewed varied from one-fourth column to over a page in length. Eleven were less than 1 column, 7 were from 1 to 1-3/4 columns, and 9 were 2 or more columns in length. Charts were not used in the items we reviewed.

A number of producers said they had read about seasonality in letters received from WMPA. Mr. Abildgaard said in our interview that 2 or 3 such letters a year were mailed to members from about 1949 to 1952. The milk payroll checks gave separately the price of base and excess milk. Management of WMPA felt this information with the checks had a definite educational effect on producers.

The association did not employ a fieldman in most of 1953 and in 1954. Members often stopped at the office, however, to discuss marketing problems with Mr. Abildgaard or Mr. Elrod. Both men also frequently called at members' farms. These contacts provided an opportunity for members and management to discuss together seasonal variations of deliveries.

Content of Educational Program of WMPA

Before discussing the content of the work by WMPA, it will be helpful to give an outline of what may be included in education about seasonality. A dairy cooperative, together with other agencies, may provide dairymen information on the following points so they will be better informed about seasonality:

1. Effects of seasonal variations of deliveries on the market and the cooperative
2. Incentives to producers to reduce seasonality which are provided by the price plan
    a. Seasonal price plan
        (1) Purpose
        (2) Operation of the plan in providing incentives
    b. Total price or income advantage which can be obtained by shifting from one seasonal pattern to another -- including effects of seasonal price plan, seasonal changes in utilization, and seasonal changes in basic prices
3. Ways to reduce seasonality of production
    a. General methods -- change breeding pattern, feeding practices, and other management practices.
    b. Provide specific farm management information on how to level out production
    c. Suggestions relating to immediate market situations -- culling, keeping milk at home, feeding and management for greater production during a specific shortage.
4. Relative costs of different seasonal patterns of production
    a. Data on relative costs, with explanation of the interaction of feeding and breeding practices with total annual production per cow, and with total cost.

Seasonal Problem of WMPA. Let us get in mind how seasonality affects the market and the cooperative, and then what WMPA has done to keep its members informed of the nature of the problem. The Wichita market experienced serious fall shortages of milk during World War II and early postwar years. It was necessary to ship milk into Wichita from other areas during much of this time. Production gradually increased until dairymen in the Wichita milkshed have almost fully supplied the market the last 4 or 5 years. Market reports indicate Wichita handlers received some milk from outside the area during all postwar years except 1950 and 1954.

This tendency toward a fall shortage of milk often reduces returns to producers. At least, if class prices were equal producers could increase their returns by shifting some production from spring to fall. Mr. Abildgaard did not, however, mention a tendency toward a fall shortage of milk as being a problem to WMPA resulting from seasonality.

Other marketing problems result from the spring flush of milk deliveries. WMPA has sometimes had difficulty selling all the surplus milk and maintaining the price of the surplus class during recent years. These problems have been pointed out in the Dairy Bulletin and presumably at meetings.

Thus, our limited information indicates WMPA officials have given little publicity to the problems resulting from seasonal variations. Of course, seasonality may be viewed largely as an individual matter, a matter of providing equitable payments for each producer. However, to the extent it is viewed as a problem to the group of producers (the cooperative), it seems desirable to discuss frequently the group problems which result. Also knowledge of general marketing problems -- knowledge of reasons for the interest of the cooperative -- may increase the support of the base plan by members. Even those producers who receive less money in any one year as a result of the base excess plan may accept it more readily if they are brought to understand the base excess plan improves the market over a period of years for the group of producers -- the cooperative.

For this reason, marketing problems connected with seasonality should be discussed even if seasonal variations are considered largely as an individual matter. Officials of WMPA may wish to consider from time to time whether members have an adequate understanding of the marketing problems resulting from seasonality.

Incentives to Reduce Seasonality. WMPA officials have carefully and often described for the members the base excess plan at Wichita. Most of the discussion we reviewed in the Bulletin related to the base excess plan, and Mr. Abildgaard said it usually is discussed at district meetings.

Articles in the Bulletin have provided a rather full discussion of the base excess plan. Its purpose has been told a number of times, and once or twice the plan has been critically compared with other seasonal incentive plans. Rules of the plan have been discussed frequently. Several articles called attention to progress toward more even production under the plan and gave members well-deserved compliments.

The sample of producers interviewed were asked several questions related to the base excess plan. We shall evaluate the adequacy of producers' understanding of that plan when we discuss these data.

We observed in reviewing the Bulletin that several articles included an appeal to members to take advantage of the base excess plan to even out their production. These appeals seem a desirable part of education about seasonality, and no opportunity should be missed to incorporate these appeals.

We discussed earlier price and income incentives provided by the pricing practices at Wichita. The base and excess prices are published each month in the Bulletin. They also are given separately on the payroll checks and on a card mailed to producers each month.

We noticed one article in the Bulletin pointing out the higher annual average price received for level production (May 1952). Average prices were compared for three assumed seasonal patterns of deliveries. It seems that this information would be very useful to producers. These data could be carried a step farther and converted into income incentives. This would require only that the price differences be multiplied by a typical volume of milk deliveries. The dairyman must decide whether the extra income he could obtain would repay his cost for the changes necessary to attain the different seasonal pattern. This must be the basis of his management decisions about seasonality. And if possible, persons writing to inform farmers should state the information in terms of the information the farmer needs.

The extremely uneven patterns of production used in the May 1952 article are most uncommon around Wichita. One producer used for comparison was assumed to set a base of 200 pounds, then gradually get his deliveries up to 500 pounds in the spring, and to establish a yearly average of double his base. No producer among the 100 records we have available had a seasonal pattern of deliveries which varied to this extent. The other seasonally uneven producer used for comparison experienced even wider variations. Comparisons of average prices or total returns will be most meaningful if seasonal patterns are used which are common in the area.

Ways To Reduce Seasonal Variations. Information about management practices for achieving more even production is part of education about seasonality. Dairy cooperatives fortunately can depend on other agencies to take much of this information to farmers. The extension service and farm magazines emphasize information on production practices.

However, cooperative officials and employees can speed up the adoption of new practices by discussing them in publications, talks, and personal contacts. They can increase the awareness by their members of certain proposals. And, by showing the relationship of the practices to marketing problems and price incentives, they can get their members more interested in adopting improved practices. Most of the material of other agencies does not call attention to marketing problems. The material usually cannot call attention to the specific incentives of an individual market, since the material is prepared for wider distribution.

WMPA officials have frequently called attention to breeding and feeding for even production. Several articles in the Bulletin suggested members should regulate breeding, and should improve their pasture and supplemental feeding in the late summer. Mr. Abildgaard and others probably also have discussed these needs at meetings and in conversations, although we do not have information on these comments.

A cooperative can go further than merely mentioning the general practices which might be helpful. The officials also can provide technical information and assistance. Mr. Abildgaard, however, commented he believed producers know how to improve their practices and do not especially need technical assistance on breeding and feeding practices. WMPA officials apparently do not provide such technical information and assistance to members but depend upon college and other sources to provide it.

WMPA sometimes makes suggestions to its members which are related to immediate marketing problems. For example, the Bulletin for April 1954 suggested excess milk might more profitably be kept at home. And in July 1951 the Bulletin pointed out that it is not helpful to buy cows from neighbors in order to establish a large base. Deliveries often cannot be maintained at this level, and buying cows from neighbors does not help the market.

Relative Costs of Different Seasonal Patterns. To make rational decisions on a seasonal production pattern dairymen must estimate the relative costs of the various actions they might take to change their pattern. They probably would find information on relative costs for other farmers useful in making estimates for their own situation.

It is believed in many areas that it costs more to produce milk in the fall. Neither WMPA nor other agencies, however, have conducted formal studies of relative annual average costs of even and uneven production for the Wichita area. We also noticed very little mention of relative costs in the Bulletin. More work along this line probably would help to bring about more even production.

Summary of Educational Program. We have discussed briefly the content of educational work by WMPA about seasonality. The provisions and operation of the base excess plan received much the most emphasis in the material reviewed. Marketing problems, farm management suggestions, and cost information received less attention.

It undoubtedly has been wise to emphasize the base excess plan. At the very least, we can only commend the effectiveness of the price plan and information program at Wichita. The remarkably even seasonal pattern speaks for itself.

However, we have commented briefly on some subjects which might be considered for more attention. These might improve the seasonal patterns of individual members. Improvements in the educational material also might contribute to membership relations, to the support of WMPA by its members.

Finally, WMPA may be threatened by a new seasonal problem. The recent tendency toward a late summer slump of deliveries may soon require pricing changes or educational action, or both. This situation is recognized by the recent appeals for an even pattern of freshening, rather than fall freshening. It may become necessary to step up substantially the appeals for better feeding in the summer and early fall. Our impression of farm practices and weather conditions in Kansas suggests dairymen might consider adopting new, improved programs for forage feeding. Officials may wish to consult with extension personnel at the College on forage practices. The College perhaps could be interested in giving some special assistance on the summer feeding problem if shown the particular need.

Farmers' Replies to Questions About Seasonality Problem

The farmers were asked several types of questions: Their opinions of the seasonal problem, their understanding and support of the base excess plan, the management suggestions they recalled and had adopted, their opinion of some costs and problems of even production, and their sources of these various sorts of information. The answers to these questions will reveal some of the strengths and the weaknesses in the information and understanding of the farmers interviewed. The weaknesses shown will suggest topics which may be desirable to emphasize in future articles and talks.

The 100 WMPA members we interviewed found it difficult to distinguish the problem of seasonally uniform deliveries from the problem of the level of deliveries throughout the year. They tended to give replies related to the annual problem when asked about the seasonal problem. They thought of the continuous surplus of the last 2 years or so when they should have thought about seasonal variations from surplus to shortage (or from greater to lesser surplus). They also found it difficult to distinguish seasonal pricing provisions, including the base excess plan from the price level in general.

This tendency is entirely reasonable. The recent nationwide surplus of milk and the more-than-adequate supply of Grade A milk at Wichita have focused attention on the level of marketings and the level of prices. Mr. Abildgaard indicated he had shifted his attention somewhat from seasonality to the level of production.

Nevertheless, the distinctions between the problem of seasonality and the problem of the level of production have several times been pointed out in the Bulletin. And it seems worthwhile to develop and maintain producer awareness of the distinction.

Effect on Cooperative

We asked the farmers: "Has the seasonal production of milk been a problem to your cooperative in the past 5 years?" In answer, 61 said "Yes," 33 "No," and 6 did not know.

They then were asked to describe the ways seasonal production affects the cooperative. These replies are difficult to classify. Thirty-two farmers commented that there is too much milk at times, 2 said there is not enough at times, and 12 said there is both too much at some times and too little at others (Table 3). Several felt seasonality results in price variations or an unstable market.

Several farmers were entirely disinterested in the marketing problems related to seasonality. They commented that this is the problem of the cooperative, not theirs. This attitude poses a membership relations problem to the association.

Replies of two specific questions added much to the information obtained in these undirected comments. We asked, "In recent years, has the cooperative had difficulty selling all the milk during the flush season?" In answer 77 said "Yes", 16 "No", and 7 "Don't know." We also asked, "Has the cooperative recently had too little milk in the fall?" To this question 19 answered "Yes", 69 "No", and the remaining 12 did not know or gave no reply. Interviewers in several cases noted comments like "Not in the last 3 years." Thus there may be additional farmers in the sample who are aware there were shortages a few years ago.

Table 3. -- Ways members believe seasonal production affects the operation of the cooperative

Reply	Number of replies
Too much milk at times	32
Not enough milk at times	2
Too much some times, not enough at others	12
Reduces price when too much milk	10
Causes a price increase when milk short	1
Results in price variations	2
Causes an unstable market	1
Necessary to haul surplus to outside plants for manufacturing	4
Supply seems not to be balanced	1
Not much effect	2
Not my problem to think about this	7
Reply not related to question	20
Don't know	11
Total 1/	105

1/ Total exceeds number of interviews (100) since some members gave more than one reply.

The replies to these two specific questions indicated a fairly accurate evaluation of the seasonal problem. There have not been serious shortages at Wichita for several years. There have, however, been periods when it was difficult to dispose profitably of all surplus milk. Note that more farmers (77) said there has been difficulty during the flush season than the number (61) who said "Yes", to the general question, "Has there been a seasonal problem?" The thinking of many of the farmers thus has not been fully developed. Some did not readily associate their realization of specific problems with the existence of a general problem of seasonality.

Farmers' Statements about Actions by the Cooperative

We asked the farmers, "What has the cooperative done recently to overcome the problem of seasonal production?" Twenty-four said the base plan was adopted or that the plan was changed (Table 4). Eleven directly mentioned educational work of WMPA. There were 25 other replies related to seasonality in some way. But there were 42 replies relating to the level of production, rather than its seasonal distribution. Only four dairymen interviewed thought the cooperative had done nothing.

In view of the large number of replies not closely related to our subject, we should note that we believe the interviewers made a genuine effort to obtain replies related to the question. We also observed a number of interviews, and believe many members of WMPA had difficulty in distinguishing seasonality from the level of deliveries.

Several groups of the 42 replies not directly related to seasonality are interesting. There were 17 comments about increased advertising or increased selling activity. Another 14 comments were about recent efforts of WMPA to raise the United States Public Health (USPH) rating of the milk supply around Wichita. They knew this improvement would make it easier to find outside markets for milk.

Altogether, the replies relating to seasonal variations gave a well-rounded picture of the related activities of WMPA. The persons interviewed clearly recognize the base plan, educational efforts, and the action of WMPA in finding other markets for surplus milk.

Farmers' Statements about Actions the Cooperative Should Take

To complete the picture of the general attitudes of the group of WMPA members about seasonality, we asked, "In your opinion what should the cooperative do about seasonal production?" Twenty replies related to changes in the base excess plan (Table 5). The most frequent specific suggestion was that the base should be determined by deliveries during 1 month of each quarter. We will present more information later on farmers' comments about the base plan.

There were 12 additional comments related to seasonality. Five of these suggested education to encourage level production.

It is satisfying to note that 6 farmers said they were well satisfied, although the question was worded to encourage criticism.

Table 4. -- Recent actions by WMPA to overcome problem of seasonal production, as recalled by association members

Actions	Number of replies
Adopted base excess plan	21
Changed base excess plan	3
Discussed possible changes in base plan	2
Conducted educational programs about seasonality	11
Changed price to encourage even deliveries	3
Made it hard to establish base (chose difficult months)	2
Advised culling, with seasonality considered	1
Shipped in milk when market short	1
Hauled surplus to other markets	8
Sent milk to other markets for fluid use	7
Advised feeding surplus to calves	1
Replies related to level of deliveries	42
Replies not related to question	7
Nothing done	4
Don't know	8
Total 1/	121

1/ Total exceeds number of interviews (100) since some members gave more than one reply.

Table 5. -- Actions WMPA members suggest to relieve problems of seasonal production

Suggestions	Number of replies
Use one month each quarter to set base	6
Use lowest period for each producer to set base	3
Penalize higher base than later deliveries	3
Other specific and general suggestions, base plan	8
Raise prices in short season	2
Discontinue base plan	1
Encourage level production	5
Improve markets for surplus	4
Replies entirely related to level of production or to price level	32
Replies not related to question	7
No suggestion, well satisfied	6
Cannot do anything	3
Problem of cooperative, not producer	1
Don't know	23
Total 1/	104

1/ Total exceeds number of interviews (100) since some members gave more than one reply.

Understanding and Support of Seasonal Incentives

WMPA members who were interviewed have a fairly accurate understanding of the base excess plan. And most of them support the plan, but some have suggestions about specific changes.

We will discuss the information obtained on seasonal incentives and the base plan in this section. We have observed earlier that the educational work at Wichita emphasizes information on the base plan. Therefore, our comments here will have much to do with our general evaluation of educational work at Wichita which relates to seasonality.

Estimates of Price Difference between Spring and Fall

The weighted average of base and excess prices is computed at Wichita each month. We computed the difference between this average price for the high and the low price months, 1950-54, and averaged the result. The average of these price differences was $0.61; the 1954 difference was $0.28.

We asked the 100 WMPA members to estimate this difference for "recent years." They tended to overestimate the difference (Table 6). Let us say the group whose estimates were between 25 cents and 74 cents were "correct." This class includes 38 of 93 replies (7 were not able to make an estimate). Seven estimates were below 25 cents and 48 estimates were 75 cents or higher.

We cannot say whether this tendency to overestimate the difference between the seasonal high and seasonal low of prices is desirable or undesirable. Certainly it is in the direction of serving the interests of the market.

Base Excess Plan -- Understanding and Opinions

We asked three specific questions about the base excess plan at Wichita. First, "What are the base-forming months?" The farmers answered this with remarkable accuracy. Ninety-six said August to November, which was correct. One each said July to October and September to November. Two said September to December.

The second question was, "During what months is your 1954 base used in determining how much you are paid?" These answers were barely satisfactory, we feel, and not nearly as accurate as the answers to the first question (Table 7). Perhaps 71 answers could be called accurate. These include 64 precisely correct answers, January to December 1955. The 29 remaining answers reflect varying degrees of inaccuracy, misunderstanding, or lack of knowledge.

WMPA officials may wish to consider calling attention to the months 1954 bases (or the bases set during a given year) are applied in computing returns. There are several opportunities to call attention to this provision. It is especially unfortunate that a few members apparently think there is no set rule about when bases are applied, or that it is up to the handler.

Table 6. -- Estimates by members of WMPA of price difference in the market between the fall and flush season of recent years

Cents per hundredweight 1/			Number of replies
Less than		$0.25 2/	7
$0.25	-	0.74 3/	38
0.75	-	1.24	30
1.25	-	1.74	10
1.75	-	2.24	7
2.25	-	2.74	1
Don't know			7
Total			100

1/ Actual average of price differences between high and low price months (weighted average of base and excess prices), 1950-54: $0.61; 1954 only: $0.28. This actual average of price differences was computed from records of Agricultural Marketing Service, U.S.D.A.

Replies stated as a range, as $0.75 - $1.00, tabulated at the midpoint.

2/ Includes 2 replies "higher in spring," and 2 replies "very little difference."

3/ Includes 3 replies "not much difference."

Table 7. -- Months WMPA members think 1954 base is used in determining how much they are paid

Months 1954 base applies	Number of replies
January to December 1955	64
Whole 12 months of the year	3
After January 1	2
Following year	1
All the time	1
For a year beginning I don't know when	1
December and onward	1
December 1954 to November 1955	4
Up to plants	1
Changed according to use of milk	1
When they get ready	1
Price based on supply and demand	1
Never know price	1
May and June	1
August to November	3
Don't know	14
Total	100

The third question about the base excess plan was, "How much lower was the price of surplus milk than base milk last month?" The interviews were held from January 11 to about January 28, 1955. The farmers probably had been informed of December prices. The difference between base and excess prices was $1.75 in December 1954, and $1.74 in November.

A few more of the farmers interviewed underestimated the price difference than overestimated it (Table 8). Of the 93 estimates made, 32 were from $1.70 to $1.79, which was substantially correct. Forty-nine estimates were $1.69 or lower, while only 12 estimates were $1.80 or higher.

How many of the farmers gave reasonably accurate replies to all three questions about the base excess plan? Let us include all those whose replies were sufficiently accurate to give a basis for sound management decisions. We include 71 replies about the months 1954 bases are used. We also include 65 replies between $1.50 and $1.99 to the question about the difference between base and excess prices. We find that 45 of the 100 members gave reasonably accurate answers to all three questions. Five of these consulted records to answer the question about price difference, but some of these might have given correct replies anyway.

We tried to learn whether the WMPA members interviewed supported the base excess plan at Wichita. And we asked them what changes they thought should be made. Some replies to a question we discussed earlier, "What should the association do about the seasonal problem?" also relate to these questions.

We first asked the farmers, "Are you satisfied with the seasonal price plan?" Sixty-nine said "Yes" and 31, "No." However, we believe these replies give a more pessimistic picture than is accurate. Some of those "not satisfied" made only minor suggestions. Others seemed dissatisfied with the price level and other market conditions rather than the base excess plan.

We asked those "not satisfied" for suggestions. There were a total of 35 comments by the 31 farmers. Only 19 comments, however, are useful in thinking about the base excess plan and farmers' support of the plan. These are: "Use 1 month each quarter to form base" (4); "Form base earlier in the year" (1); "Use months when easier to produce to form base" (1); "Use base plan all year" (farmer thought base plan applied at discretion of dealers) (1); "Form base on 2 summer and 2 winter months" (1); "Change base period" (1); and "Base period should be the upward trend in the milk price" (1).

Also: "Keep price more even the year around" (5); "If we have pasture, give us a chance to make a little more" (in effect, discard base excess plan) (1); "Should be paid cost of feed during seasonal decline" (1); and "Don't know, they will have to figure that out" (2). It is remarkable that none of the farmers in the "not satisfied" group specifically suggested that the base plan be discontinued.

Table 8. -- Recollection by WMPA members of price difference for most recent month between base and excess milk 1/

Price difference	Number of replies
Less than $1.00	1
$1.00 - 1.49	21
1.50 - 1.69	27 2/
1.70 - 1.79	32 3/
1.80 - 1.99	6
2.00 - 2.49	6
No reply obtained	1
Don't know, no surplus last month	4
Don't know	2
Total	100

1/ Replies made January 11-28, 1955. Actual difference in December 1954 was $1.75 and in November, $1.74.

2/ Includes 2 replies by persons who consulted records.

3/ Includes 5 replies by persons who consulted records.

We also asked those who were "satisfied" with the seasonal pricing plan, "Would you like to see any changes in the price plan?" Thirty-one said "Yes" and 38, "No." The suggestions by the "satisfied" farmers were as varied as by those "not satisfied." There were 8 comments about the price level, 6 miscellaneous comments, and 3 farmers could not think of any desirable changes. Thus, there were 14 useful suggestions by "satisfied" farmers. These were: "Change base-forming months" (1); "Set base when production is low, don't inform producer in advance" (1); "Form base June to September" (1); "Higher price for surplus milk" (2); "Higher price for base milk" (1); "Give preference to nearby producers in increasing quotas" (1); and "Higher milk price in winter when we have to buy feed" (1). Among answers also were: "Keep price more even the year around" (1); "Improve price by more even production" (1); "Responsibility of cooperative to work out price plan" (1); "Changes for the better," and finally, "Like to see the elimination of two prices" (1). This last "satisfied" farmer evidently wanted the base plan discontinued. Recall that we had a similar suggestion when we asked what the cooperative should do about seasonal production. The suggestions were not by the same person.

We will now discuss for several paragraphs certain suggestions about the base excess plan made by the farmers interviewed. We will draw from the general suggestions about seasonal problems (Table 5) as well as suggestions made when we asked the farmers specifically about the seasonal price plan.

There were over 20 suggestions that there should be major changes in the system for setting bases. Eighteen of the 100 farmers made one of the following suggestions:

a. Use one month each quarter to set base
b. Use the lowest period for each producer to set base
c. Penalize a producer whose base is higher than his later deliveries
d. Do not use the same months every year to set base
e. Use different base periods for different groups
f. Change base months
g. Use months when easier to produce to set base
h. Use 2 summer and 2 winter months to set base.

It seems evident that the present provisions of the base excess plan at Wichita were adopted because of a specific seasonal problem. The market tended to experience a surplus of deliveries during late winter, spring, and early summer months. There was a tendency toward shortage in the period August to November (Table 1). (It is not entirely clear why August was chosen as a base-forming month, but there are several possible reasons, and the choice now seems to have been wise.) Anyway, the mechanics of the base excess plan certainly encourage a higher proportion of annual production in the base-forming months. This presumably is to offset the greater cost or greater difficulty for most farmers of producing milk in this season.

Now the seasonal variations of deliveries are much less, and the months June, July, August, and September have been the months of relative shortage in 1952-54. It is not yet clear whether this timing will continue with more "normal" weather.

The fact that deliveries are by now very nearly seasonally uniform does not necessarily indicate most farmers think it is as easy and as cheap to produce milk in the fall as at other times of year. The relatively good seasonal pattern more likely indicates that the incentive provided about offsets the greater cost and difficulty of the change which was desirable from the viewpoint of the market.

It does not seem justified on this basis to remove the incentive for maintaining deliveries in the fall. If followed, most of the suggestions already noted would appear to remove this incentive. In fact, dairymen in the market who have increased the proportion of their annual deliveries in the fall might charge officials with bad faith if such a change were made.

The suggestion to use one month each quarter to set bases appears to ignore the seasonal character of the basic problem. There would hardly remain any incentive to produce as much milk in the fall as other seasons if deliveries during 1 month each quarter were used to set bases. We made some computations comparable to those in Table 2, but using February, May, August, and November deliveries to set bases. Our composite producer S (spring peak) received a higher price than composite producer F (fall peak) -- $5.170 and $5.141, respectively. Producers probably would not want a price plan which would give the spring peak producer a higher annual average price than the fall peak producer.

The suggestion to use the lowest period for each producer ignores the fact that the patterns for all producers are complementary. Deliveries by about 1,000 producers are added up to determine the seasonal pattern for the market. It is a benefit, rather than a disservice, to the market to have a few producers who deliver less milk in April, May, and June than later in the summer and fall. It would not seem desirable to penalize the producers with a spring slump. The original idea of the seasonal pricing plan was to reward those who would deliver relatively more in the months when the market tended to experience a shortage. The base excess plan with bases determined by deliveries during the usual shortage period for the market seems to best serve the requirements.

We have studied briefly two of the ideas suggested by farmers interviewed. Similar reasoning can be applied to each of the other suggestions we noted.

Recent experience in the market suggests it may become desirable to change slightly the base-forming period. The base period might be advanced to include July and drop November, or all 5 months might be included.

Officials may wish to consider this problem carefully. The first need in considering a change is to discuss the problem fully with members. The officials may particularly wish to discuss with members the implications of some suggestions we find are in their minds.

Management Suggestions Recalled by Dairymen

The next step is to learn what herd management practices the farmers recall having been suggested. For the dairyman must change his management to get a more even pattern of deliveries. Of course, gradual improvements in his herd or the amount and quality of feed may also gain a more even pattern for him. These changes may be the result of programs for improvement started many years ago. The farmer may scarcely be aware of the gradual improvement at this time. Certainly he will associate some improvement in his practices with cost reduction, or greater production, but these also will help him obtain a more even seasonal pattern of deliveries.

Thus we must recognize our information will be incomplete. Also, some of the changes noted by farmers have been made for a number of reasons. Nevertheless, the information we will review provides a useful indication of suggestions farmers have been receiving related to seasonality. We also will have information on the sources from which farmers recall the suggestions have come.

Suggested Changes in Practices

We asked the farmers, "What changes in practices on your farm have you heard suggested or read about, that might help you get more even production?" We were able to obtain specific replies from 62 of the 100 farmers. These 62 dairymen mentioned individual practices a total of 105 times. Some of these practices may not be closely related to seasonality; nevertheless the farmers gave these replies.

Thirty-two of the practices mentioned relate to breeding. Five of these said fall freshening was suggested, while 15 replies were more closely related to an even pattern of freshening. Four said artificial insemination was recommended.

Forty-five of the practices mentioned related to feeding. Twenty-three of these related to pasture improvements, 3 to supplemental feeding of concentrates, and 5 to supplemental feeding of roughage. There were 14 miscellaneous and general replies.

The remaining 28 replies were varied. Eight farmers mentioned culling herds; and 4, irrigation.

Next, where did the farmers recall hearing or reading about these suggestions? We are principally interested in the number of times the extension service, the association, and farm magazines were mentioned (Table 9). Extension service and college sources were mentioned 12 times. WMPA was mentioned 19 times, 10 referring to the Bulletin. Farm magazines were mentioned 18 times and newspapers once. We thus must take note of farm magazines as a major medium for education about seasonality.

In all we have tabulated 93 times sources of information were mentioned. But in 19 cases the ideas had come from their "own experience." These replies were, of course, not precisely related to the questions. We asked for the suggestions they had heard or read about and for the sources of these ideas. The interviewers attempted to obtain logical replies.

Table 9. -- Sources of recommended farm practices, as recalled by members of WMPA

Source	Number of times source mentioned 1/
County agent, farm institute meeting, college	12
GI training, farm management fieldman	2
WMPA Dairy Bulletin	10
WMPA meetings	6
WMPA, not specified and miscellaneous	3
DHIA, breed association, artificial breeding association	5
Farm magazines (18), newspapers (1)	19
Milk dealers, milk hauler	3
Unspecified meetings and publications, miscellaneous publications	6
General reading and discussion	3
Friends and neighbors	4
Own experience	19
Don't know	1
Total	93

1/ Data represent replies by 62 farmers stating specific practices, and 105 times practices were mentioned. Two or more sources were given for some practices, and no source was given for one practice mentioned. Also, if same source given by a farmer for two or more practices, source tabulated only once.

How shall we interpret the replies that suggestions were obtained through the farmer's own experience? He may have obtained the idea originally from another source. He had thought about the suggestion in relation to his own experience, though, and he may have tried the suggestion. Therefore, he associated the idea with his own experience. We are evaluating the various "outside" sources of information and education. But, it is fortunate our attention was directed to the role of the farmer's experience in determining his practices.

A few farmers said they had obtained ideas from "friends and neighbors." Part of the reasoning about "experience" also applies here. The few times "friends and neighbors" were mentioned certainly understate the importance of neighborhood conversations.

Assistance on Breeding and Feeding Practices

We asked the group of WMPA members whether anyone had personally helped them or told them how to breed their cows for fall freshening. Only seven farmers said they had received such personal help. They received assistance from an agriculture teacher, DHIA tester, and inseminators. Other sources were the dairyman's father (mentioned twice), neighbors, artificial breeding meetings, and Mr. Abildgaard.

We also asked farmers, "Has anyone or any publication advised you during recent years to change your feeding late in the summer?" Twenty-six farmers said "Yes" and 74 "No."

Who did they recall had made these suggestions? Different sources were mentioned 30 times in all, as indicated in the following tabulation:

Source	Number of replies
Newspapers, "farm papers," "publications"	6
Specific magazines	12
Plant fieldman	1
Feed salesmen, grain elevator	6
College and county agent	3
Radio (Beheimer program)	1
Neighbors	1
	30 1/

1/ Represents replies by 26 farmers. More than one source mentioned by some farmers.

It seems noteworthy that eighteen of these replies referred either to specific farm magazines, or to "farm papers," "publications," and newspapers in general terms. Also note that WMPA was not mentioned.

These are the only questions in which we attempted to have farmers identify specific suggestions or a type of advice with the source of the advice. These questions placed a great strain on the memory of the farmers, but we obtained useful information.

Management Practices Adopted by Farmers

We asked the group of dairymen several questions about practices they had adopted. This information will provide a fuller understanding of actions farmers have taken to get more even production. The information should also be helpful to persons in the market in evaluating the various information programs. Officials in the market know in greater detail than our information can provide the suggestions made at Wichita over the years. Thus, they can relate the practices farmers have adopted with the suggestions that have been made.

We asked farmers first to outline changes they had made to get more even production (Table 10). Seventy-eight farmers gave 119 replies. Half the changes related to breeding, not quite one-fourth to feeding, and over one-fourth to practices other than breeding and feeding.

Let us compare these replies about actual changes with the suggestions the farmers recalled. Thirty-five farmers recalled suggestions about breeding; 58 said they had made changes. They recalled 45 suggestions about feeding; but they had made only 28 changes. This contrast is difficult to explain. It appears at least that dairymen have not been convinced specific feeding practices are directly related to seasonality. Researchers who have studied seasonality from the standpoint of farm management often have concluded feeding practices are the greatest deficiency. They say changes in feeding are the most profitable way for many or most farmers to change their seasonal pattern of production.

We next asked dairymen to state changes they plan in their practices, to get more even production. Only 26 of the 100 farmers said they planned to change their farm practices. Of course, others may be making gradual improvements in breeding, feeding, and other practices which will result in more even production. The few farmers who said they planned to make changes indicates that those interviewed were fairly satisfied with their seasonal patterns. Even many of the replies by the 26 farmers had no clear relationship to seasonality.

The farmers mentioned 6 planned changes in breeding and 7 changes in feeding (Table 11). They planned 12 changes in the scale of their herd (8 increases), and there were 6 other replies.

We asked several specific questions about breeding practices. First, we asked for the percentage of cows that freshened from August to November (1954). Most of the farmers interviewed said they had more than a proportional number of their cows freshen in these base-forming months (Table 12). The proportional number would be one-third of the herd. The median proportion of August to November freshenings was 50 percent (half had more, half had less then 50 percent).

We then asked, "Is this proportion higher than 5 years ago?" Forty-five of the farmers said "Yes," 46, "No," and there were no replies from 9 (Table 13). It is more interesting, however, to determine whether those with the higher proportions of fall freshening have recently increased this proportion.

Table 10. -- Replies by members of WMPA to question: "What changes have you made in the past 5 years in managing your herd to get more even production?"

Changes	Number of replies	
All changes in breeding		58
Breeding, season mentioned	38	
Artificial insemination	8	
Stopped artificial insemination	1	
Penned up bull	2	
Miscellaneous, season not mentioned	9	
All changes in feeding		28
Improvements in pastures, pasture practices	12	
Supplemental feeding of grain, mixed feeds	2	
Supplemental feeding, roughage	5	
Miscellaneous	9	
Miscellaneous changes		33
Culled herd, other herd improvements	20	
Other changes in herd	5	
Fed more milk to calves	2	
Changes in equipment	2	
Other	4	
Total		119 1/

1/ Replies relate to changes made by 78 farmers. Others said they had made no changes.

Table 11. -- Changes planned by farmers to obtain more even production

Changes planned	Number of replies	
In breeding		6
Breed for even freshening	3	
Breed for slack periods	3	
In feeding		7
Pasture mentioned	3	
Other	4	
Indefinite statements, and practices not clearly related to seasonality		18
In size of herd	12	
Intend an even flow of milk	3	
Other	3	
Total replies		31 [1]

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[1] Replies represent statements of 26 farmers.

Table 12. -- Replies by members of WMPA to question: "What proportion of your cows freshened this year from August to November?" 1/

Percent	Number of replies 2/
0 - 19	5
20 - 29	18
30 - 39	12
40 - 49	1
50 - 59	27
60 - 69	14
70 - 79	9
80 - 100	13
No reply	1
Total	100

1/ Replies during January 1955. Answers relate to August to November 1954.

2/ Median (half above, half below): 50 percent.

Table 13. -- Relationship between increases in fall freshening and percent of cows freshening August to November 1954, as reported by 100 WMPA members.

Percent freshening August to November	"Is this proportion higher than 5 years ago?" Yes	No	No reply 1/
0 - 19	0	5	0
20 - 29	2	13	3
30 - 39	7	3	2
40 - 49	0	1	0
50 - 59	13	12	2
60 - 69	7	7	0
70 - 79	6	2	1
80 - 100	10	3	0
No reply	0	0	1
Total	45	46	9

1/ Includes new producers who couldn't make a comparison, "Don't know" replies, and failure to obtain reply.

Some farmers who said 70 percent, 80 percent, or more of their cows freshened in the fall said this percentage had not increased in the past 5 years. And some who said only 20 to 39 percent of their cows freshened from August to November said their percentage of fall freshenings had increased. But, in general more of the farmers with a high proportion of fall freshening said this percentage had increased than did those with less fall freshening.

For a systematic breeding program it is important that farmers maintain a breeding record. Eighty-one of the 100 WMPA members interviewed said they kept a breeding record. Most of these had kept a record for some time, which suggests this was not the result of a recent educational program (Table 14). Twenty-eight of the 81 who kept records began in 1944 or earlier, and 29 started between 1945 and 1949. Twenty-four began more recently, and some of these gave that reply because they only recently began to produce milk.

Some people have suggested artificial insemination helps maintain an even seasonal flow of milk. We asked the farmers whether they used artificial breeding for at least part of their herd. Thirty-seven farmers said they used articial breeding; 63 said they did not. This service evidently began around Wichita after World War II and has gradually been adopted since then. Four farmers said they began to use artificial insemination in 1948, 13 in 1949-50, 11 in 1951-52, and 11 in 1953-54. We have no indication that anyone around Wichita has attempted to promote artificial insemination as a means to obtain more level production.

We also asked the farmers, "Do you try to breed heifers for fall freshening?" Seventy-two said "Yes"; 28 said "No."

We also asked when the farmers began to try to have heifers freshen in the fall (Table 15). This had been a practice of many dairymen for a long time, as indicated by the table. However, 15 of the 72 farmers we interviewed who breed heifers for fall freshening began only in 1949 or 1950. Twenty-four of the 72 began only in 1951 or 1952. Are there special reasons so many dairymen adopted this practice from 1949-1952? Persons in the market may know these reasons.

We asked the farmers if they had read any articles on how to breed for fall freshening. Only 29 of the 100 said they had read such articles. Twenty-two of the 29 said they had made some use of the information in the articles. We did not ask them to describe the information in the articles or to say how they had used it.

Good feeding practices are important to the establishment and maintenance of level production. We asked the farmers about changes they had made in their feeding practices in the late summer and early fall. The recent drought situation at Wichita made the replies difficult to interpret. The successive years with hot, dry summers, 1952-54, no doubt caused many farmers to change their feeding practices.

Therefore, we cannot say how many changes were made because of a desire for even production or because of education about even production, rather than the weather. Neither do we know how many of the changes are permanent.

Table 14. -- Year farmers said they began to keep breeding records

Year	Number of replies
1944 or earlier	28
1945 - 1949	29
1950	6
1951	11
1952	3
1953	2
1954	2
Total keeping records	81
No breeding record	19
Total	100

Table 15. -- Year farmers said they began to try to have heifers freshen in the fall

Year	Number of replies
1944 or earlier	12
1945 - 1946	4
1947 - 1948	3
1949 - 1950	15
1951 - 1952	24
1953 - 1954	9
"Always"	1
No reply	4
Total using practice	72
Not using practice	28
Total	100

Fifty-one farmers stated they had made changes, mentioning 83 separate changes in feeding practices. These related to pastures (17), roughage (34), concentrates (26), and miscellaneous (6).

The 17 comments about pastures largely related to planting new crops for pasture, such as rye, sudan, clover, or alfalfa. Other representative remarks were "More pasture," "Temporary pastures," and "Try to have green pastures."

The 34 comments about roughages largely related to starting to feed roughage earlier than formerly and feeding larger quantities. The farmers mentioned silage, alfalfa hay, "hay," "green feed," "dry feed," and "roughage." Several farmers said they had started to use silage and "chopped green feed" during recent years.

The 26 replies about concentrates largely referred to feeding grain or mixed prepared feeds earlier than formerly or in larger quantities. The word "more" was used in 19 replies. Three replies stated they had begun to feed grain or other concentrates throughout the year or at times of year when they formerly were not fed. Two comments were that they had reduced the feeding of protein or reduced grain feeding.

Costs and Problems of Even Production

Producers' ideas of the costs and problems of even production may have much to do with their performance. Accurate information about cost is as important in making a sound management decision as information about price and income incentives.

We asked the 100 WMPA members, "How much more do you think it costs you per hundredweight to produce milk in the fall than in the spring?" Their replies were generally lower than one might have expected, 35 of 82 farmers who made estimates saying less than $1 per hundredweight (Table 16). These included several replies, "No more," "Not much more," and "Very little more." At the other extreme, 11 of the 82 said the extra cost in the fall was at least $2.50 per hundredweight.

We might expect farmers who believe it does not cost much more to produce milk in the fall than the spring to have a fairly even seasonal pattern of production. Therefore, we analyzed graphically the relationship between an index of seasonal variations for each farmer and his estimate of the fall to spring difference in production costs. There was no observable relationship. Farmers who thought the cost difference was small seemed as likely to have a high spring peak of deliveries as farmers who thought the cost difference was large.

We asked a few other questions about management problems related to seasonality. Farmers who produce less milk in the fall than the spring may have a labor problem. We asked farmers who said they produced more milk in the spring than the fall the following question: "Does the lack of time on your part or the lack of available help prevent you from producing more milk in the fall?" Twenty-three farmers said they produced more milk in the spring (the number of farmers who actually produced more milk in the spring than the fall was larger). Six of the 23 said there was a time or labor reason why the did not produce more in the fall. Seventeen said lack of time or help was not a reason.

Table 16. -- Estimates by producers of their cost difference between fall and spring milk production

Cost difference per hundredweight 1/	Number of replies
Less than $0.50	18 2/
$0.50 - 0.99	17
1.00 - 1.49	17
1.50 - 1.99	10
2.00 - 2.49	9
2.50 and over	11 3/
Depends on season	1 4/
Don't know	17
Total	100

1/ Many farmers replied only upon being urged to "make an estimate." Ten replies in percentages converted to dollars assuming spring cost is $4.00 per hundredweight.

2/ Includes 12 replies, "No more," 3 replies, "Not much," and 1 reply, "Very little."

3/ Includes one reply by farmer who consulted records.

4/ Interviewers recorded several other comments about weather.

Farm management analysts have said seasonal work loads on many farms encourage producing milk in the fall. There is more time for chores then than in the spring. We do not know the typical situation for the farmers in our study. Evidently few felt that lack of time was a reason they did not produce more milk in the fall.

Many farmers experience much difficulty in getting cows to breed for fall freshening. The opinion is widely held that spring is the "natural" time of calving. It is interesting to find that only 31 of our 100 farmers said it was more trouble to breed for fall freshening.

This result is more favorable than in a similar survey of 100 farmers in another area. These other farmers are in a slightly more rigorous climate and probably experience more favorable summer grazing conditions. We obtained replies from 97 of 100 farmers in the second area. Forty-five of this second group (compared with 31 at Wichita) said they had more trouble breeding for fall freshening.

Several analysts have studied the relationship of season of freshening to the cow's production during a lactation. These researchers usually have found that cows which freshen in the fall produce more milk than those which freshen in the spring. One difficulty with this sort of analysis is the problem of insuring that the individual farmers in the study have the same level of managerial ability. However, even studies in which there was considerable effort to take account of this factor usually have indicated greater production by cows which freshen in the fall. We do not know of any precise analysis applicable to the Wichita area.

However, this relationship would be important in making sound management decisions about the season of freshening. We have discussed price incentives for fall production and farmers' opinions of fall and spring costs. In addition to these, a relationship of season of freshening to production would greatly affect relative profitability of different seasonal patterns of production.

Therefore, we asked the farmers their opinions of this relationship as follows: "Which cows give the most milk in a year's time, those which freshen in the fall, or in the spring?" Eighty-nine gave replies, 31 saying "Spring," 38 "Fall," and 20 "No difference."

We asked the farmers who said "Fall" or "Spring" to estimate the difference in percentage terms or in pounds (Table 17). Estimates by farmers who said spring freshening cows produced more were fairly low. Eighteen of the 31 farmers made estimates of 12 percent or less. Estimates by farmers who said fall freshening cows produced more were similar. Twenty of the 38 made estimates of 12 percent or less. There was no prevailing opinion among the farmers we interviewed of the season of freshening which led to greatest production.

Members of WMPA we interviewed appeared to have given little thought to costs and management problems associated with level production. The farmers were rather reluctant to make estimates of the extra cost of producing milk in the fall compared with the spring. The estimates we obtained showed no relationship to the seasonal pattern of production for the farmer making the estimate. The farmers interviewed also found it difficult to estimate whether spring or fall freshening cows produced the most milk and how much more.

Table 17. -- Estimates by WMPA members of relative amounts of milk produced by fall and spring freshening cows 1/

Percent more milk per year than by cows freshening in other season	Estimates by members thinking spring freshening cows produce more, number of replies	Estimates by members thinking fall freshening cows produce more, number of replies
0 - 7	5	6 2/
8 - 12	13	14
13 - 17	4	2
18 - 22	2	8
23 - 27	1	3
28 and over	2	3
Don't know	4	2
Total	31	38
Average of estimates of additional milk, compared with cows freshening other seasons 3/	12.7 percent	14.2 percent 4/

1/ Farmers first asked, "Which cows give the most milk in a year's time, those which freshen in the fall, or in the spring?" Thirty-one "Spring," 38 "Fall," 20 "No difference," and 11 "Don't know" replies.

2/ Includes one reply, "Just a little."

3/ Average of 82 replies including 20 "No difference"; 1.9 percent in favor of fall freshening.

4/ One unreasonably high estimate was omitted in computing this average.

These findings suggest that agencies interested in level production have not stimulated farmers to think about these costs and problems. In our brief investigation of the content of educational work at Wichita, we found no indication that facts on these subjects were presented to farmers.

WMPA officials may wish to help their members become better informed about these costs and problems. At least, they may wish to stimulate their members to think about these topics. It would be appropriate to discuss this matter with extension personnel and researchers from Kansas State College. Perhaps the college could obtain, provide, and distribute this informational material.

Sources of Information about Seasonal Production

We shall discuss in this final section the sources of information about seasonality recalled by WMPA members interviewed. This information will help us evaluate the educational work of the association. We have discussed farmers' ideas about seasonality at some length and the practices they say they have adopted to gain more level production. Certain areas of strength and weakness in their understanding are indicated. What we learn here about the sources of information recognized by farmers will suggest areas of information WMPA may wish to consider for more attention. Our findings also may suggest areas of information which are adequately covered.

Recall that we have already discussed the sources of much information about seasonality that farmers recalled. We presented the sources of suggestions about management practices which the farmers recalled (Table 9). We found that the county agent and other college related sources, WMPA sources, and magazines were mentioned most frequently. We asked about sources of personal assistance in breeding cows for fall freshening and got 7 different answers from 7 farmers. The farmers also told us their sources of advice about feeding practices late in the summer. Most of the farmers who recalled such advice said it came from magazines and other farm publications (p. 29).

WMPA Meetings

We asked our group of farmers if they recalled discussion of seasonality at WMPA meetings. Sixty-four of the 100 said they recalled such discussions during recent years, 6 did not, and 30 had not attended meetings. Attendance by members at meetings is very important, and a well-recognized problem. Presumably some farmers beyond the 30 "non-attenders" had not attended meetings regularly.

Mr. Abildgaard stated that he regarded the district meetings the most effective means of reaching producers with information about seasonal production. He estimated that 60 percent of the members attended district meetings each year. We noted that only 50 of the 100 farmers recalled discussions of seasonality at district meetings any time in the past 5 years (Table 18). Thus, many farmers were not reached at all by the meetings, others not regularly, and still others did not recall that a particular subject was discussed.

Table 18. -- Individuals who farmers recall have discussed seasonality at meetings

Individuals discussing seasonality	Type of meeting		
	General	Local	Special 1/
	Number of replies		
Mr. Abildgaard	17	32	3
Other employees	1	2	0
President	3	3	1
Directors	1	2	1
Discussion	2	2	0
WMPA, not specified	1	1	0
County agent, college	3	1	0
Miscellaneous 2/	13	1	2
Don't recall	5	11	0
Total	46	55	7
Persons recalling discussion 3/	36	50	5

1/ "Special" meetings not identified.

2/ Includes many feature speakers who probably did not mention seasonality. Number of persons actually recalling discussion by representatives of WMPA probably higher.

3/ Number of individual replies exceeds number of persons recalling some discussion since some farmers mentioned two or more individuals.

We asked, "Who talked about the need for even production --?" Most of the farmers associated the discussion about seasonality with Mr. Abildgaard. A few mentioned the president, directors and general discussion. The question did not suggest this reply, but we might have expected more than two farmers to refer to general discussion at district meetings. Many farmers failed to keep in mind the particular subject of seasonality in saying who spoke. In their replies they named persons who were feature speakers. Some of these persons probably did not mention a specific problem such as seasonality in their talks.

Dairy Bulletin

The Dairy Bulletin provides WMPA members with much of their information about seasonality. How fully is it read? We were unable to make a thorough evaluation of the readership of the Bulletin, but asked the question, "How completely do you read the monthly Bulletin the cooperative sends out?" The farmers chose 1 of 5 answers on a card; the number who chose each of the answers on the card was as follows:

Description of reading	Number of replies
Seldom look at it	4
Just glance at it	4
Occasionally read an interesting column	10
Usually read a few columns	8
Regularly read most of it	74
Total	100

These replies indicate a high degree of attention to the Bulletin, which is desirable. We have noted that the Bulletin has carried numerous articles about even production in recent years. Members certainly have had great opportunity to become aware through the Bulletin of the interest of WMPA officials in even production.

We wanted to determine as a further indication of the readership of the Bulletin whether members were aware that even production had been discussed in that publication. We asked, "Has the need for more even production been mentioned in the monthly Bulletin of the cooperative in the past 5 years?" Seventy-nine farmers said "Yes," but 8 said "No," and 13 said "Don't know." We noted that 74 farmers said they "Regularly read most of" the Bulletin. However, 7 and 3 of these said "No" and "Don't know," respectively when asked if even production had been mentioned. These 10 persons seem to have exaggerated their reading of the Bulletin.

We must conclude that the farmers interviewed gave too high an estimate of their reading of the Bulletin. Members of WMPA no doubt look at parts of most issues and gain much information. But it is too much to say nearly all members regularly read the Bulletin thoroughly.

Personal Contact

Farmers sometimes get much valuable assistance by means of personal contacts with fieldmen, county agents, and comparable educational personnel. WMPA has employed a fieldman except from April 1953 until early 1955 and Mr. Elrod served some of the functions of a fieldman during that period. Seventeen of the 100 WMPA members said they had personally talked with a fieldman of the cooperative about even production. Several called to our attention that WMPA did not have a fieldman, which was correct at the time they were interviewed.

We also asked, "Have you talked with the county agent about how to get level production or about other features of the seasonal problem?" Only 11 of the 100 WMPA members said they had talked with their county agent on this problem.

We have seen that county agents do not play an important part in WMPA meetings. They have a limited opportunity to participate in educating dairymen about seasonality at the county "Dairy Day" meetings. Our data indicate few farmers talked with them personally about seasonal production. And no doubt some of the conversations our individuals were thinking of were brief and general in nature. Conversations between dairymen and county agents probably do little to keep the dairymen informed about seasonality.

Magazines

We have observed that many of the farmers interviewed recalled obtaining suggestions about management practices from farm magazines. We also asked the specific question, "Have you seen anything about even production in the farm magazines you read?" Fifty-six farmers said "Yes," 43 "No," and 1 gave no reply. It seems noteworthy that so many of the farmers thought they had seen material about seasonality in farm magazines. At several points in our interviews the magazines were mentioned most frequently of all sources outside the cooperative.

Miscellaneous

We asked the WMPA members if they recalled reading about the need for even production in some miscellaneous sources. Twenty-five recalled information on this subject in letters from WMPA, and 14 recalled the subject in publications from the College. Nineteen recalled discussion of seasonality in letters from their milk dealer, and 16 recalled the subject in newspapers. Regarding newspapers, some farmers no doubt were thinking of weekly papers such as the Weekly Kansas City Star.

Most Helpful Source

It would be very helpful to know which of the several sources we have discussed is most useful to farmers. Of course, some may be helpful in providing one sort of information and some helpful in other ways. For this and other reasons it would be difficult to obtain a highly accurate comparative evaluation of the many sources. With these problems in mind, we proceed to discuss the information obtained.

We asked the dairymen, "In your opinion which source of information has been most helpful to you in deciding what you should do to get more even production?" (Table 19). Sixty-eight of the farmers named specific sources such as we have discussed. The other 32 referred to their experience, education, or neighbors, or did not reply. Thirty-nine of the 68 concrete replies gave WMPA sources. Eighteen others stated magazines were their most useful source. There were several other sources.

Of course, the farmer's experience and his conversations with neighbors may be more important than any of these "outside" sources in his decisions about seasonal production. Our interviewers had to encourage many of the farmers to state an "outside" source. We are interested in the material from outside sources since many new ideas get into the local "mixing bowl" of experience and neighborly discussion in this way, and this is the level at which we may be able to influence the farmers' actions.

Summary -- Sources of Information

Farmers who were interviewed obtained a major share of their information about seasonality from WMPA sources. Dairymen mentioned WMPA most frequently as a source of information about seasonality and also most frequently as the most helpful source of information.

WMPA has undoubtedly done more than other agencies to keep dairymen aware of the seasonal problem and the incentives for level production. On the other hand, both information about the work of the association, and members' statements about sources of information indicated WMPA had done little to suggest specific changes in management practices.

Dairymen also obtained much information about seasonality from the extension service and college. The frequency with which extension service sources were mentioned probably understates the importance of the work of county agents, specialists, and the college. Many of the ideas dairymen finally apply in managing their herds originate with college and extension service sources. The relation of these ideas to seasonality is not mentioned in all cases. Further, much information from colleges does not go directly to farmers but rather goes indirectly by way of other agencies.

Five of the dairymen said college and extension service sources (including one textbook) were their most useful sources of information.

We especially noted the frequent mention of magazines and farm publications as sources of information relating to seasonality. Magazines were especially important in providing dairymen information about management practices to obtain more level production.

This finding suggests a way associations might make their educational work about seasonality more effective. Officials of cooperatives often feel unable to provide their members much information about breeding, feeding and other management practices. Articles in their periodical publications might occasionally call attention to ideas in recent magazine articles, showing how the practices suggested might help some farmers obtain a more level pattern of production. This would provide a useful bridge between information from the cooperative about the seasonal problem and incentives for level production, and technical information on management practices.

Table 19. -- Replies of members of WMPA to question, "In your opinion which source of information has been most helpful to you in deciding what you should do to get more even production?"

Source	Number of replies 1/ First stated	Number of replies 1/ Second stated
WMPA *Bulletin*	13	3
WMPA meetings	22	-
Unspecified WMPA sources	3	-
Discussion with WMPA employees	1	1
County agent (2), college (2)	4	1
Other dairy cooperatives	1	-
DHIA, breed associations	0	3
Milk hauler (2), milk dealer (2)	4	-
Farm magazines	18	2
Newspapers	1	-
Feeds and Feeding (textbook)	1	-
Neighbors	3	-
Education (1), experience (12)	13	-
Don't know, not specified	16	-
Total	100	10

1/ Dairymen were encouraged to select one reply. Some rated two equally, however, and so both are tabulated.

Summary and Conclusions

The Wichita market has achieved an unusually uniform seasonal pattern of milk receipts. Price and income incentives no doubt have played a major role in reaching this favorable seasonal pattern. We have discussed in this report the educational work to encourage level production and make price incentives most effective. The conclusions from this study are tentative and may be revised after further analysis of the data.

Educational work around Wichita involves several organizations and several media. This report principally reviews activity of Wichita Milk Producers Association. Management called particular attention to the district meetings as a way to keep producers informed about seasonality. However, only half of the WMPA members interviewed even recalled discussion of seasonality at district meetings. This situation also applies to many other cooperatives, since WMPA district meetings are comparatively well attended and are well conducted. Members who do not attend or who do not absorb the information presented at, say, district meetings, must be reached in other ways. In addition, managements should develop and improve the discussions of the seasonality problem at meetings, and should encourage regular attendance of all members.

Provisions and operation of the base excess plan received the most emphasis in the material reviewed. Marketing problems, farm management suggestions, and cost information received less attention. A cooperative undoubtedly is wise to emphasize the seasonal pricing plan in its area. However, officials of cooperatives may wish to consider whether their members have an adequate understanding of marketing problems resulting from seasonality. They should tie together discussion of problems with discussion of price incentives, concluding with an appeal to take advantage of the price incentives.

Discussion of marketing problems and incentives may be carried even further with brief mention of herd management practices. Cooperatives, including WMPA, have not attempted to inform members fully about management practices. One way officials of cooperatives might assist producers in thinking about management problems is by occasionally calling members' attention to information from other sources. They might call attention to magazine articles and college publications, pointing out that the ideas suggested might help some farmers obtain a more level seasonal pattern.

There are indications that the summer feeding practices of dairymen around Wichita, as well as in other areas, are a promising field to improve herd management and gain more level production. Improvements in feeding would reduce the tendency toward a summer slump of deliveries, especially in years of unfavorable summer weather. The summer may become the shortage season for milk in many markets. Officials of cooperatives might approach this problem by discussing it with representatives of their state college, pointing out the possible connection of feeding practices with the tendency toward a summer slump. College representatives could give an authoritative evaluation of the opportunity for improvements which would be profitable for farmers under local conditions. College representatives also perhaps could be interested in providing special literature and assistance where there is opportunity for improvement.

Many of the 100 WMPA members we interviewed found it difficult to distinguish the problem of seasonally uniform deliveries from the problem of the level of deliveries throughout the year. They tended to give replies related to the annual problem of maladjustment of supply to Grade A requirements when they were asked about the problem of seasonal variations from surplus to shortage (or from greater to lesser surplus). Associations which believe their members have difficulty making this distinction may wish to improve their members' awareness of the distinction. About two-thirds of the WMPA members interviewed seemed aware of seasonality as a problem to the cooperative. A few were entirely disinterested. Lack of interest in this and other important marketing problems of cooperatives poses a membership relations problem for the cooperatives.

WMPA members who were interviewed were fairly well informed about details of the base excess plan. Forty-five of the 100 members gave reasonably accurate answers to each of three questions about provisions of the base excess plan.

Most WMPA members were well satisfied with the base excess plan. Some of those who said they were "not satisfied" made only minor suggestions. Others seemed to be dissatisfied with the price level and other market conditions, rather than the plan itself. We have summarized suggestions by farmers about the base excess plan. These suggestions may partly reflect conditions at Wichita alone, and proposals which have been discussed there. Other suggestions might be made by producers in other milksheds, as well. Officials of cooperatives should discuss the seasonal pricing plan of their milkshed with producers at every opportunity. The officials should discuss with members the full implications of the suggestions which are in the members' minds.

The dairymen we interviewed were aware of a number of recommendations about management practices which help in obtaining more level production. And most of the farmers reported they had improved breeding or feeding practices, or both. There were indications that many farmers did not fully recognize relationships between feeding practices and seasonal variations of production.

WMPA members we interviewed appeared to have given little thought to the costs involved in making management changes in order to obtain more even production. They were reluctant to estimate the extra cost of producing milk in the fall, compared with the spring. The estimates we obtained showed no relationship to the seasonal pattern of production for the farmer making the estimate.

WMPA members obtained information about seasonality from many sources. Sources connected with the association ranked highest in most respects, but members looked first to farm magazines and the extension service for suggestions about management practices.

We have suggested in this report certain areas that officials in the Wichita milkshed may wish to give greater attention. Officials of other milk markets may also find these suggestions and comments applicable to conditions in their markets. The suggestions are not intended as criticism of activities in the Wichita market. They are made with our full awareness of the excellent situation achieved at Wichita with respect to seasonality.

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